

## Geology 1:50,000 Maps Legends

### Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	MGR	Made Ground (Undivided)	Artificial Deposit	Holocene - Holocene
	SLIP	Landslide Deposit	Unknown/Unclassified Entry	Quaternary - Quaternary

### Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Flandrian - Flandrian
	TILLD	Till, Devensian	Diamicton	Devensian - Devensian
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Devensian - Devensian
	PEAT	Peat	Peat (Unlithified Deposits Coding Scheme)	Quaternary - Quaternary
	R1DU	Fluvial Terrace Deposits (Undifferentiated)	Sand and Gravel	Quaternary - Quaternary

### Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	SDG11	Gabdon Shales	Mudstone and Siltstone	Kinderscoutian - Ambergian
	PG	Pendle Grit Member	Sandstone and Siltstone, interbedded	Pendleian - Pendleian
	PG	Pendle Grit Member	Sandstone, Silty	Pendleian - Pendleian
	PG	Pendle Grit Member	Mudstone	Pendleian - Pendleian
	WWG	Warley Wise Grit	Sandstone	Pendleian - Pendleian
	PNDS	Pendleside Sandstone Member	Sandstone	Brigantian - Brigantian
	BSG	Bowland Shale Formation	Mudstone and Siltstone	Yeadonian - Asbian
	BSG	Bowland Shale Formation	Mudstone	Yeadonian - Asbian
	PDL	Pendleside Limestone Formation	Limestone	Asbian - Holkerian
	BOH	Hodderense Limestone Formation	Limestone	Holkerian - Holkerian

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	RKM	Rad Brook Mudstone Member	Mudstone	Holkerian - Holkerian
	HOM	Hodder Mudstone Formation	Mudstone	Holkerian - Chadian
		Faults		



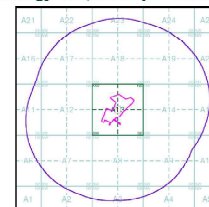
### Geology 1:50,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps. The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

### Geology 1:50,000 Maps Coverage

Map ID: 1  
 Map Sheet No: 047  
 Map Name: Cavang  
 Map Date: 1995  
 Bedrock Geology: Available  
 Superficial Geology: Available  
 Artificial Geology: Available  
 Faults: NOT SUPPORTED  
 Landslip: Available  
 Rock Segments: Not Supported

### Geology 1:50,000 Maps - Slice A



### Order Details:

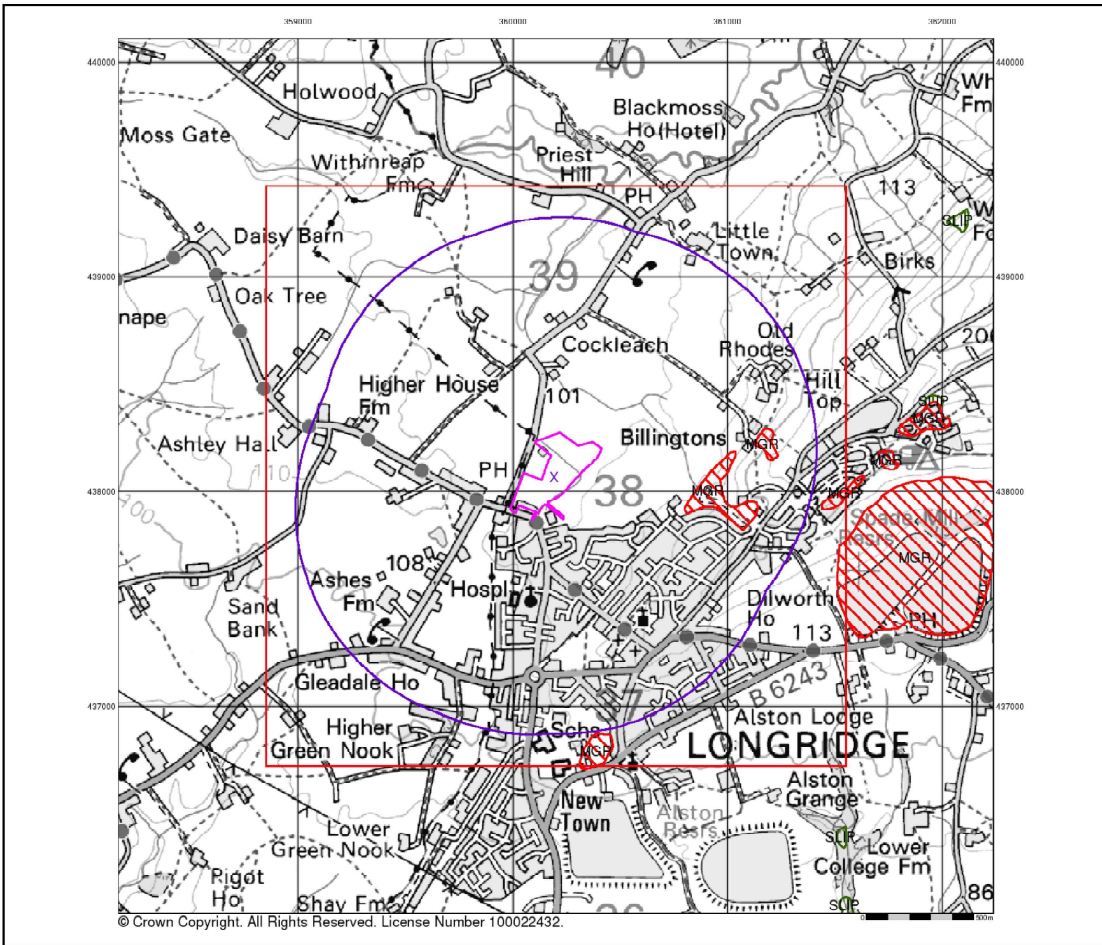
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 National Grid Reference: 380190, 438070  
 Slice: A  
 Site Area (Ha): 7.22  
 Search Buffer (m): 1000

### Site Details:

Site at 380130, 438020



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**Artificial Ground and Landslip**

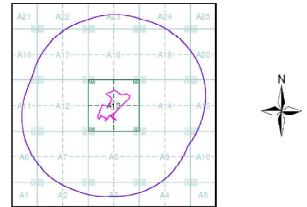
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- In-filled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes faulted strata, where the ground has collapsed due to subsidence.

**Artificial Ground and Landslip Map - Slice A**



**Order Details:**

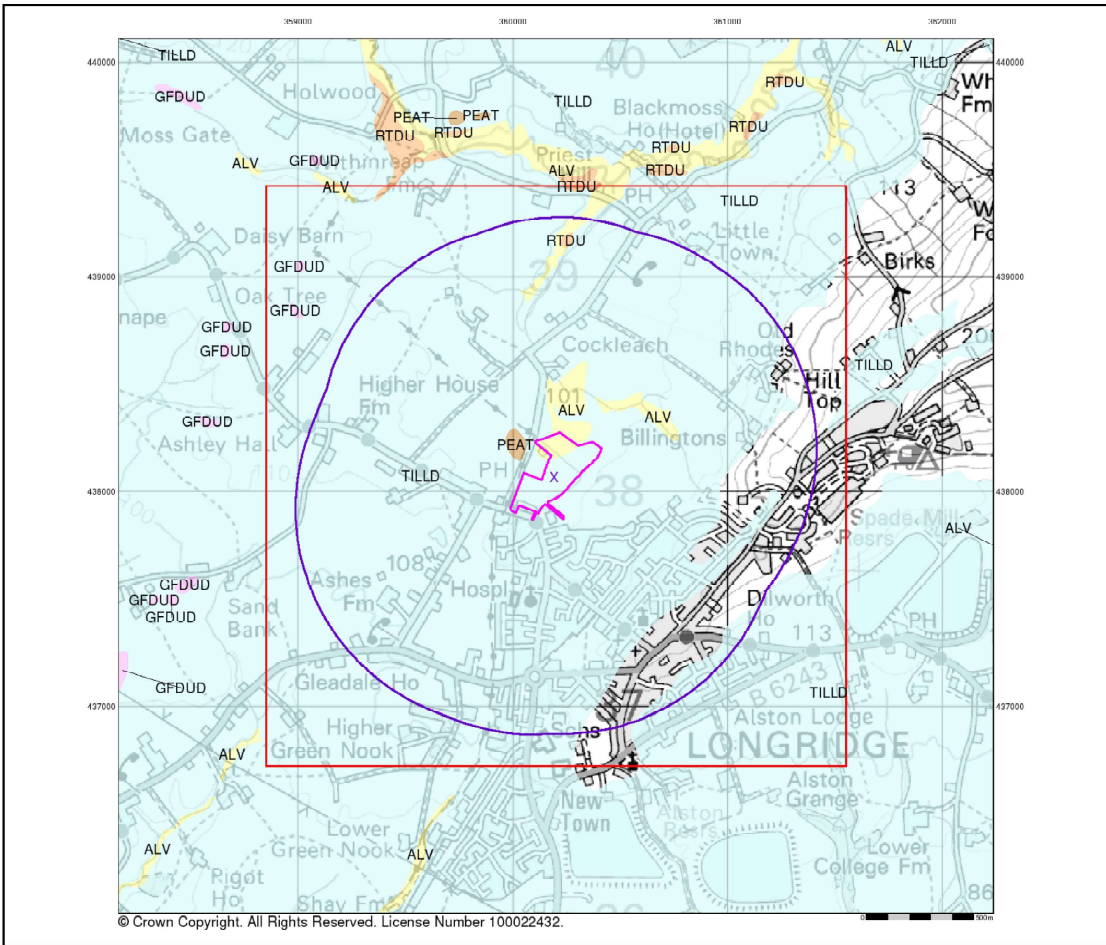
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 Customer Reference: EB1355  
 National Grid Reference: 380190, 438070  
 Slice: A  
 Site Area (Ha): 7.22  
 Search Buffer (m): 1000

**Site Details:**

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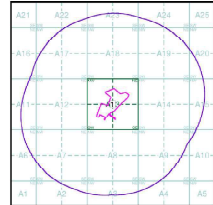
**Superficial Geology**

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.6 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

**Superficial Geology Map - Slice A**



**Order Details:**

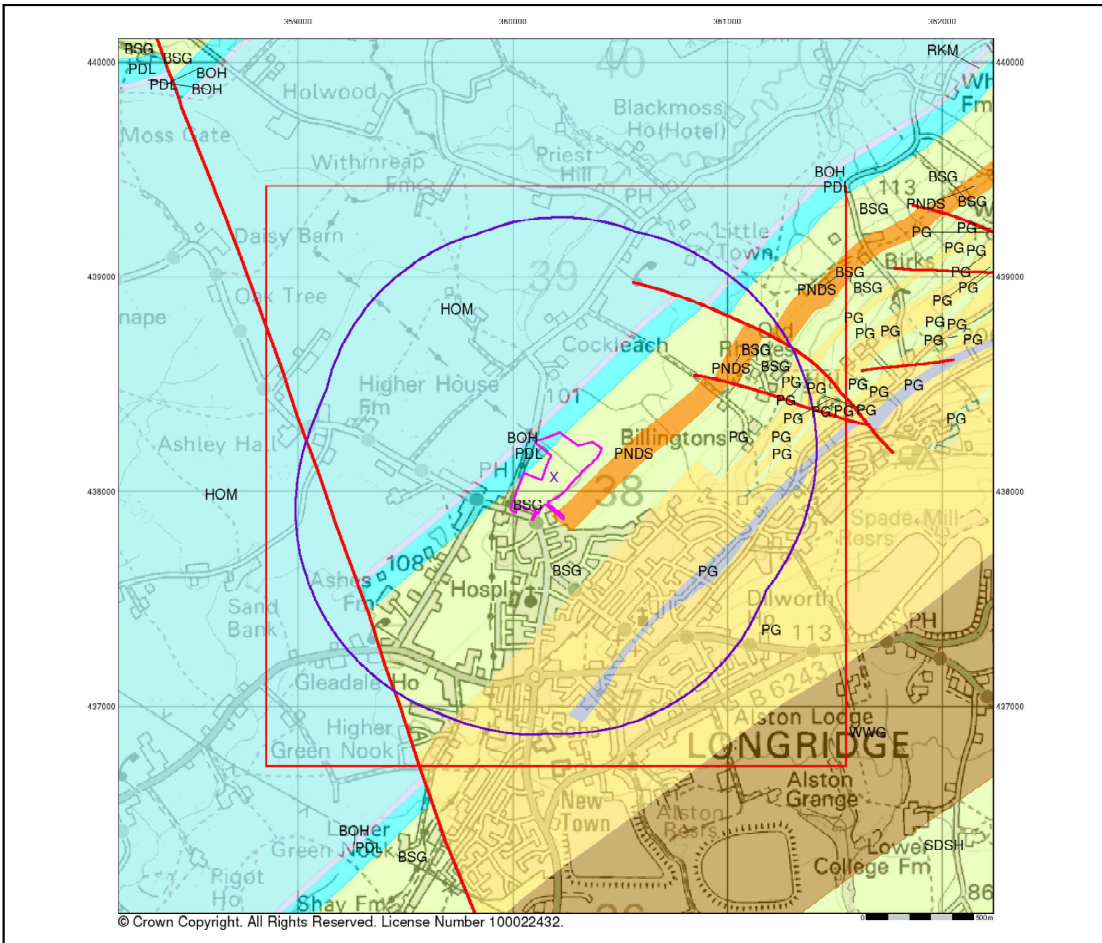
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 Site Area (Ha): 7.22  
 Search Buffer (m): 1000

**Site Details:**

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**Bedrock and Faults**

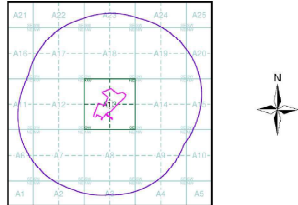
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but do not cross the strata and post date its deposition.

**Bedrock and Faults Map - Slice A**



**Order Details:**

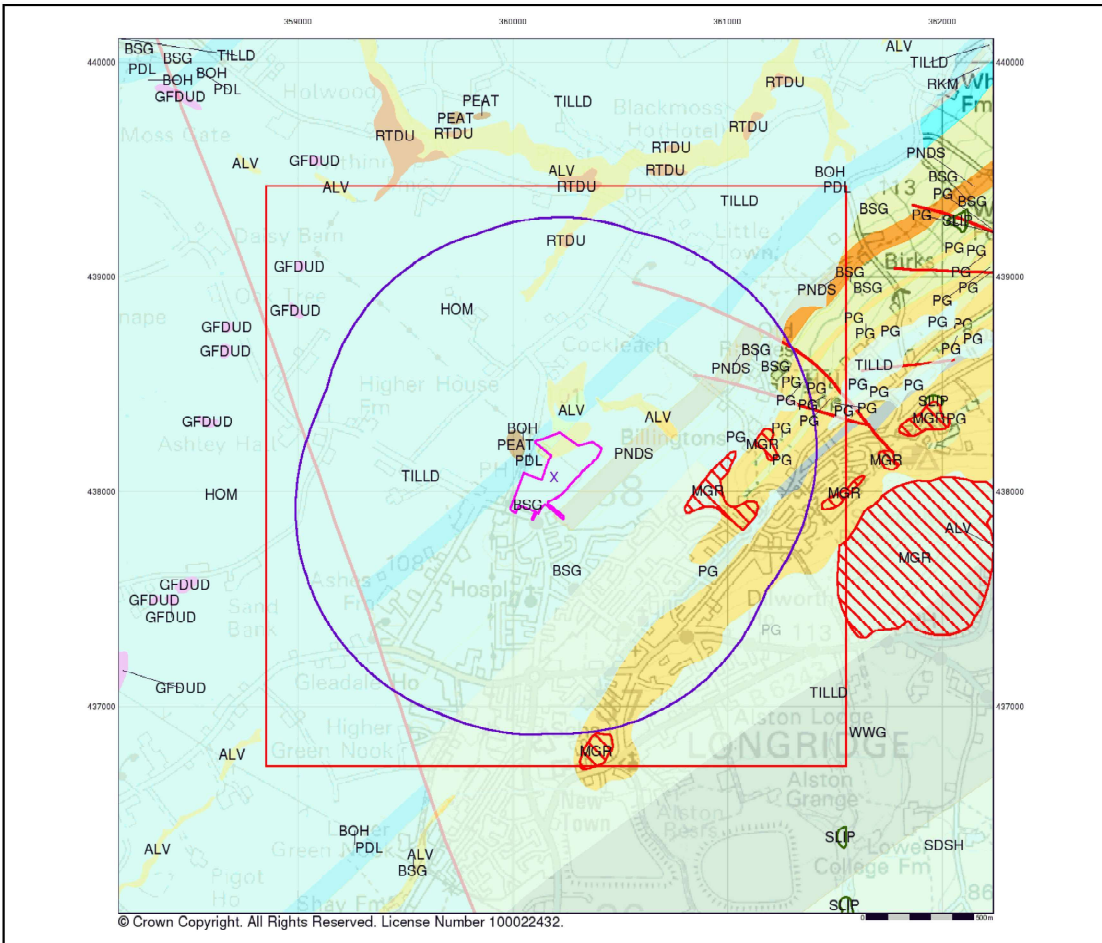
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 National Grid Reference: 380190, 438070  
 Slice: A  
 Site Area (Ha): 7.22  
 Search Buffer (m): 1000

**Site Details:**

Site at 380130, 438020



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**Combined Surface Geology**

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

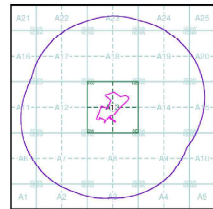
**Additional Information**

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. The database can be accessed by following the 'Information and Data' link on the BGS website.

**Contact**

British Geological Survey  
 Kingsley Dunham Centre  
 Keyworth  
 Nottingham  
 NG12 5UG  
 Telephone: 0115 936 3143  
 Fax: 0115 936 3276  
 email: enquiries@bgs.ac.uk  
 website: www.bgs.ac.uk

**Combined Geology Map - Slice A**



**Order Details:**

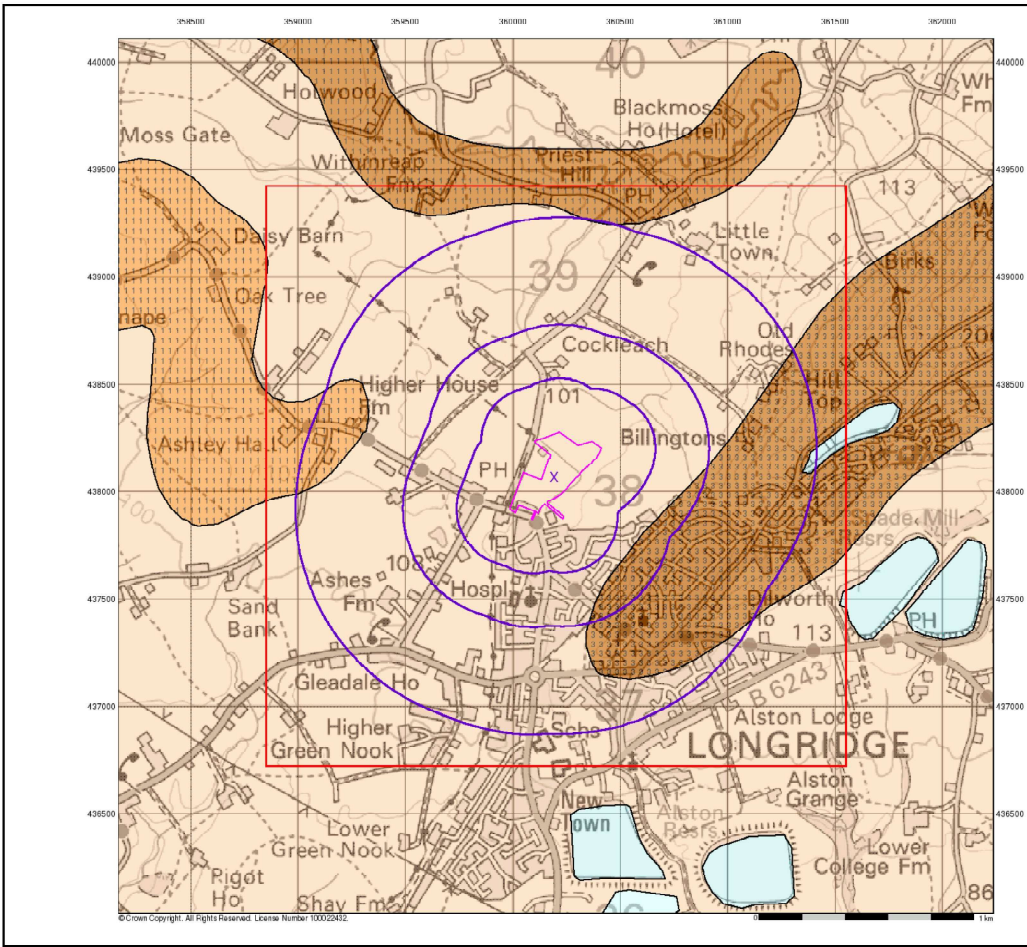
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 Site Area (Ha): 7.22  
 Search Buffer (m): 1000

**Site Details:**

Site at 380130, 438020



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### Groundwater Vulnerability

**General**

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

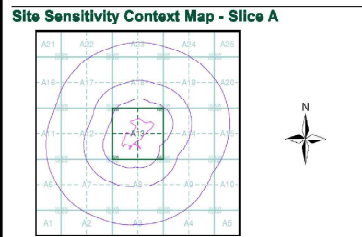
**Agency and Hydrological**

**Geological Classes**

- Major Aquifer (Highly Permeable)
- Minor Aquifer (Variably Permeable)
- Non Aquifer (Negligibly Permeable)
- Water or Sea
- Drift Deposit

**Soil Classes**

- High (H) 1, 2, 3, U
- Intermediate (I) 1, 2
- Low
- High (H) 1, 2, 3, U
- Intermediate (I) 1, 2
- Low

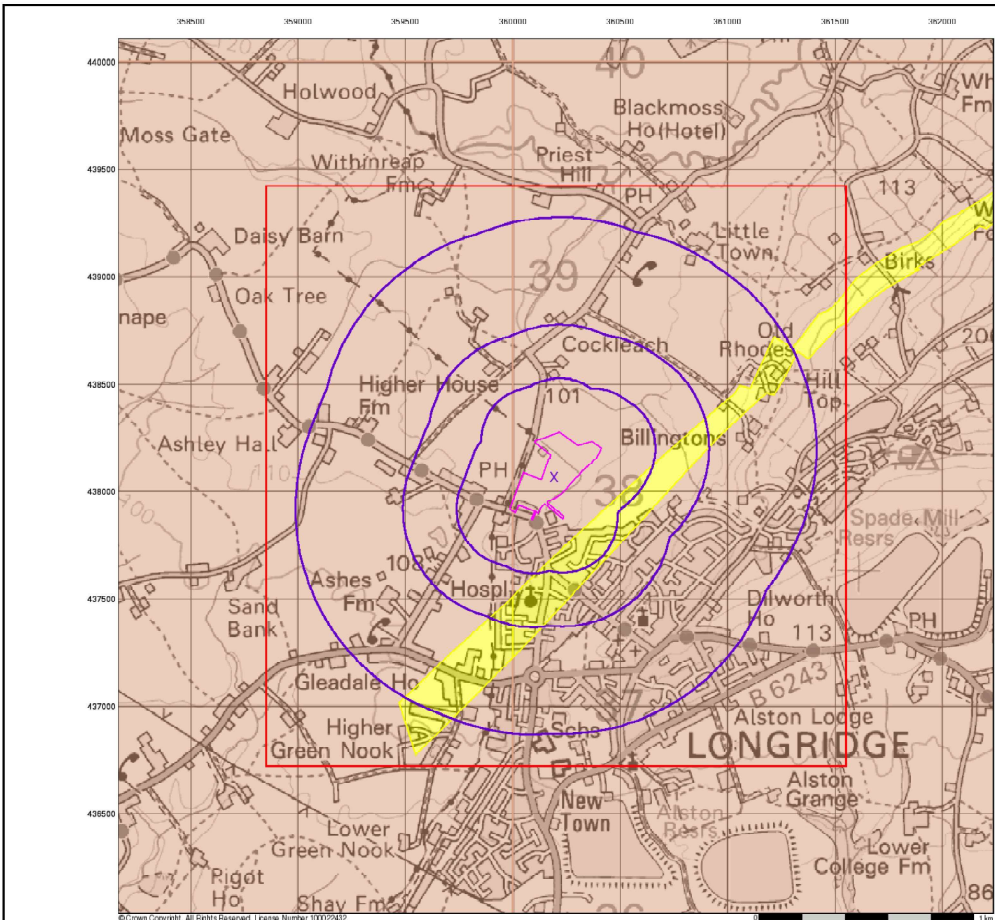


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**Site Details**

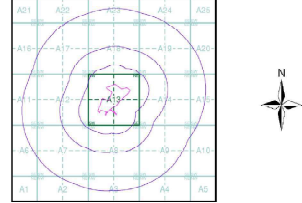
Site at 380130, 438020



**Bedrock Aquifer Designation**

- General**
- Specified Site
  - Specified Buffer(s)
  - Bearing Reference Point
  - Slice
  - Map ID
- Agency and Hydrological**
- Geological Classes**
- Principal Aquifer
  - Secondary A Aquifer
  - Secondary B Aquifer
  - Secondary Undifferentiated
  - Unproductive Strata
  - Unknown

**Site Sensitivity Context Map - Slice A**



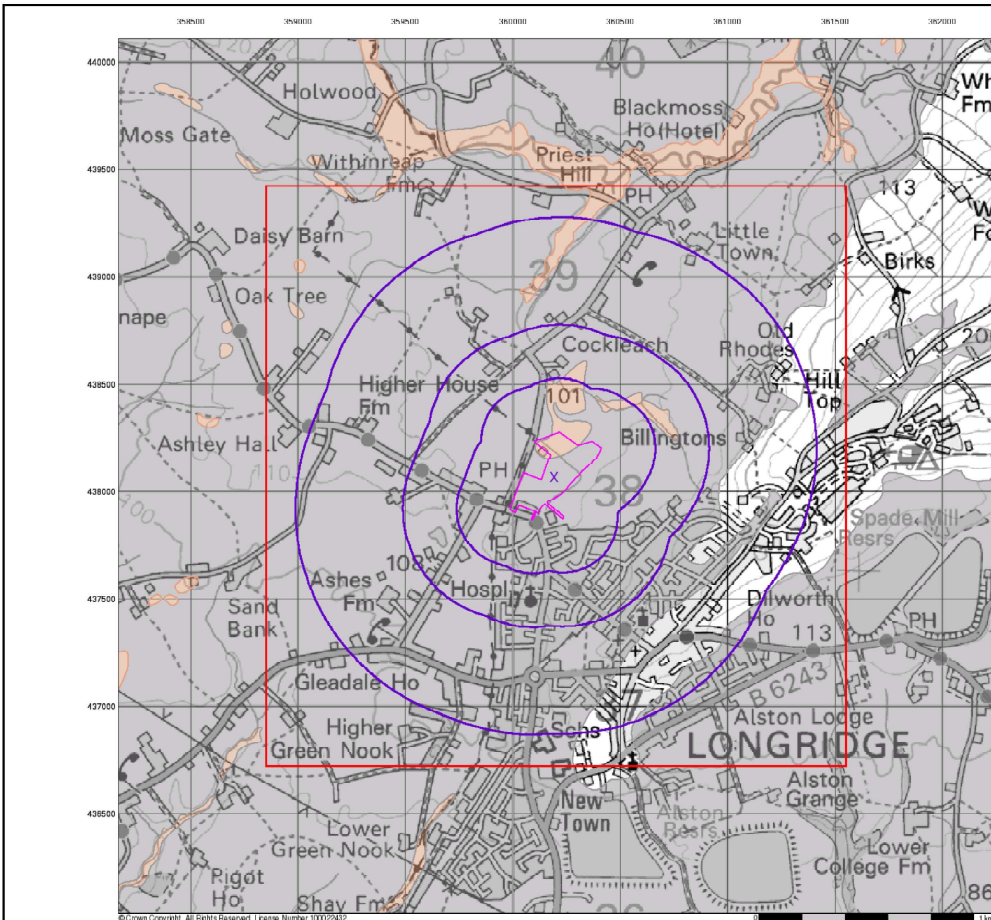
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 National Grid Reference: 380190, 438070  
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 Search Buffer (m): 1000

**Site Details**

Site at 380130, 438020

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**Superficial Aquifer Designation**

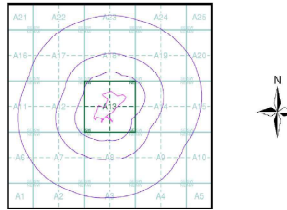
**General**  
 Specified Site (pink x) Specified Buffer(s) (purple circles) Bearing Reference Point (X)  
 Slice (red rectangle) Map ID

**Agency and Hydrological**

**Geological Classes**

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

**Site Sensitivity Context Map - Slice A**

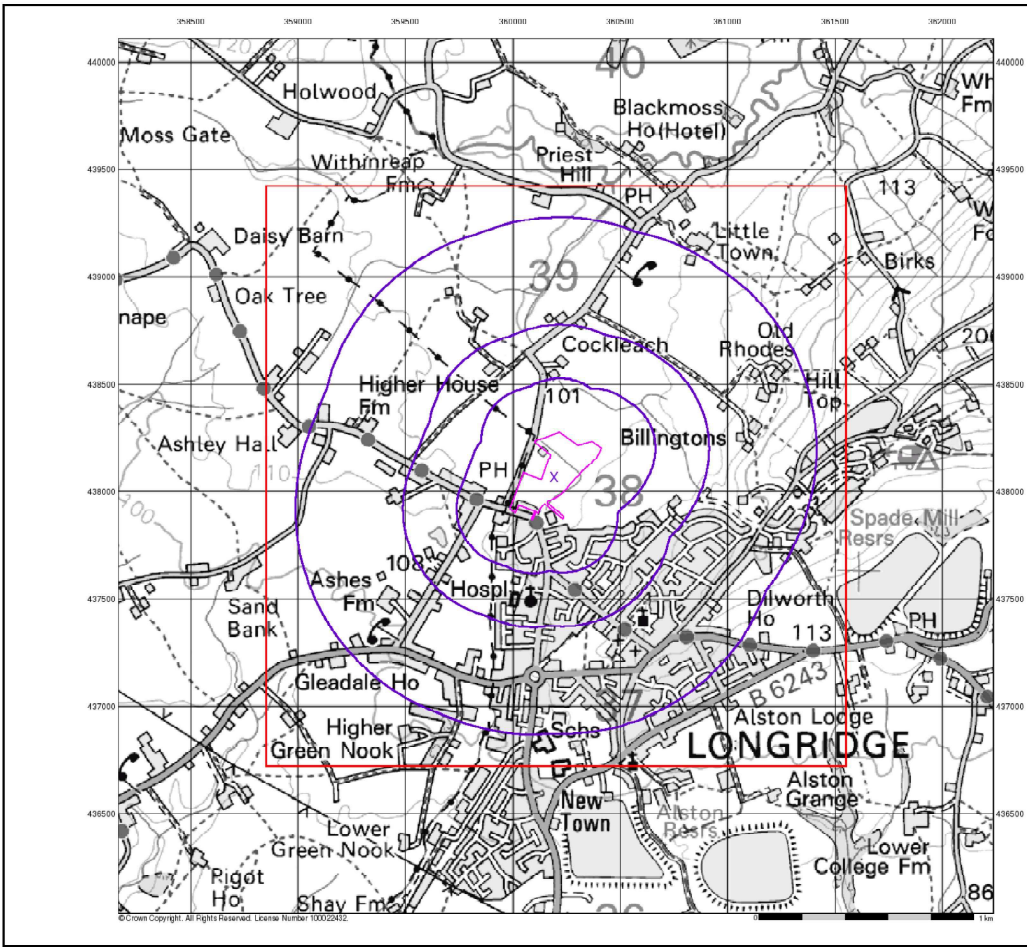


**Order Details**  
 Order Number: 55312019\_1.1  
 Customer Ref: EB1355  
 National Grid Reference: 380190, 438070  
 Slice: A  
 Site Area (Ha): 7.22  
 Search Buffer (m): 1000

**Site Details**  
 Site at 380130, 438020

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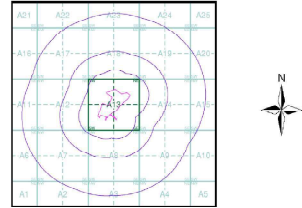




**Source Protection Zones**

- General**
- ▭ Specified Site
  - Specified Buffer(s)
  - X Bearing Reference Point
  - Slice
  - Map ID
- Agency and Hydrological**
- Source Protection Zone I
  - Source Protection Zone II
  - Source Protection Zone III
  - Zone of Special Interest
  - Source Protection Zone Borehole

**Site Sensitivity Context Map - Slice A**

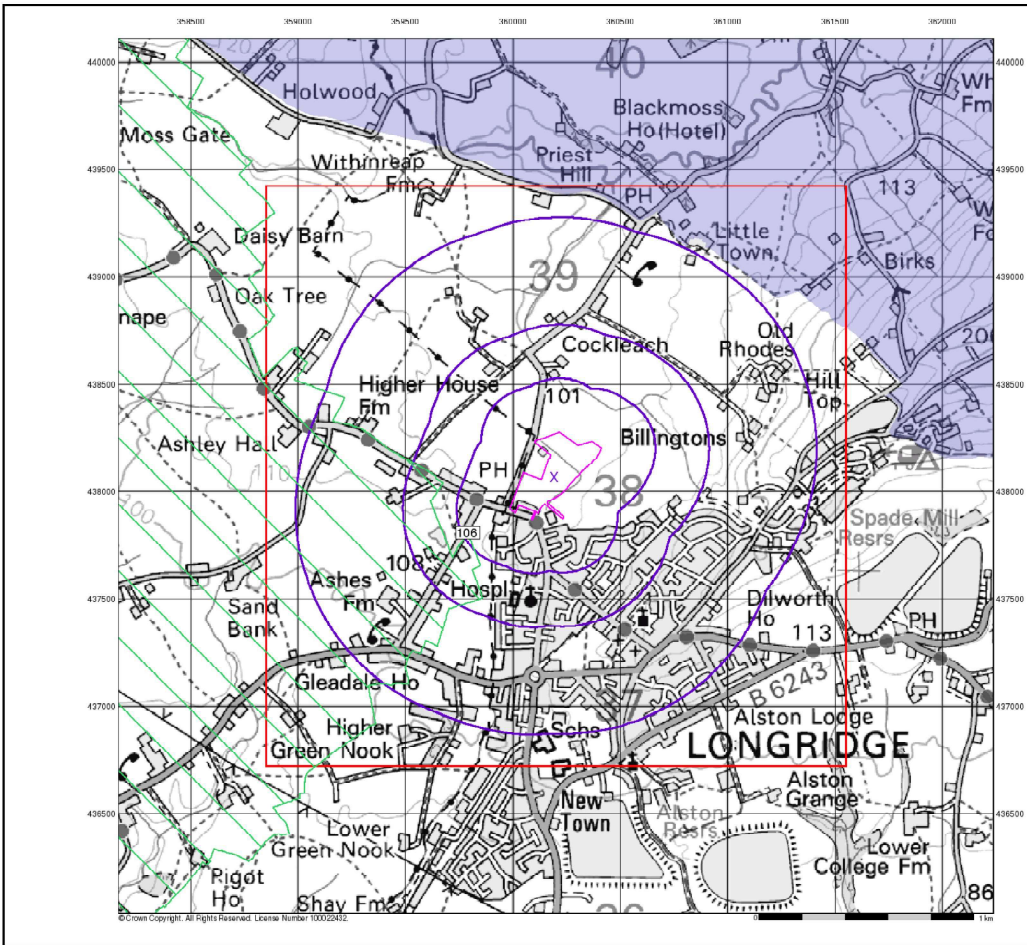


**Order Details**

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 National Grid Reference: 380190, 438070  
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**Site Details**

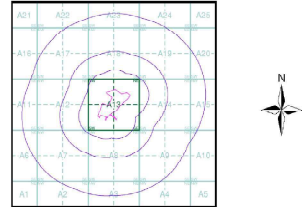
Site at 380130, 438020



**Sensitive Land Uses**

- General**
- Specified Site
  - Specified Buffer(s)
  - Bearing Reference Point
  - Slice
  - Map ID
- Sensitive Land Uses**
- Area of Adopted Green Belt
  - Area of Outstanding Natural Beauty
  - Environmentally Sensitive Area
  - Forest Park
  - Local Nature Reserve
  - Manne Nature Reserve
  - National Nature Reserve
  - National Park
  - Nitrate Sensitive Area
  - Nitrate Vulnerable Zone
  - Ramsar Site
  - Site of Special Scientific Interest
  - Special Area of Conservation
  - Special Protection Area

**Site Sensitivity Context Map - Slice A**



**Order Details**

Order Number: 55312019\_1.1  
 Customer Ref: EB1355  
 National Grid Reference: 380190, 438070  
 Slice: A  
 Site Area (Ha): 7.22  
 Search Buffer (m): 1000

**Site Details**

Site at 380130, 438020



### Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

**Slice**  
Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

**Segment**  
A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

**Quadrant**  
A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the database to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:



Envirocheck reports are compiled from 136 different sources of data.

### Client Details

Ms G Lownsbrough, Curtins Consulting Ltd, 10 Oxford Court, Bishopsgate, Manchester, M2 3WQ

### Order Details

Order Number: 55312819\_1\_1  
Customer Ref: EB1355  
National Grid Reference: 360200, 438090  
Site Area (Ha): 7.22  
Search Buffer (m): 1000

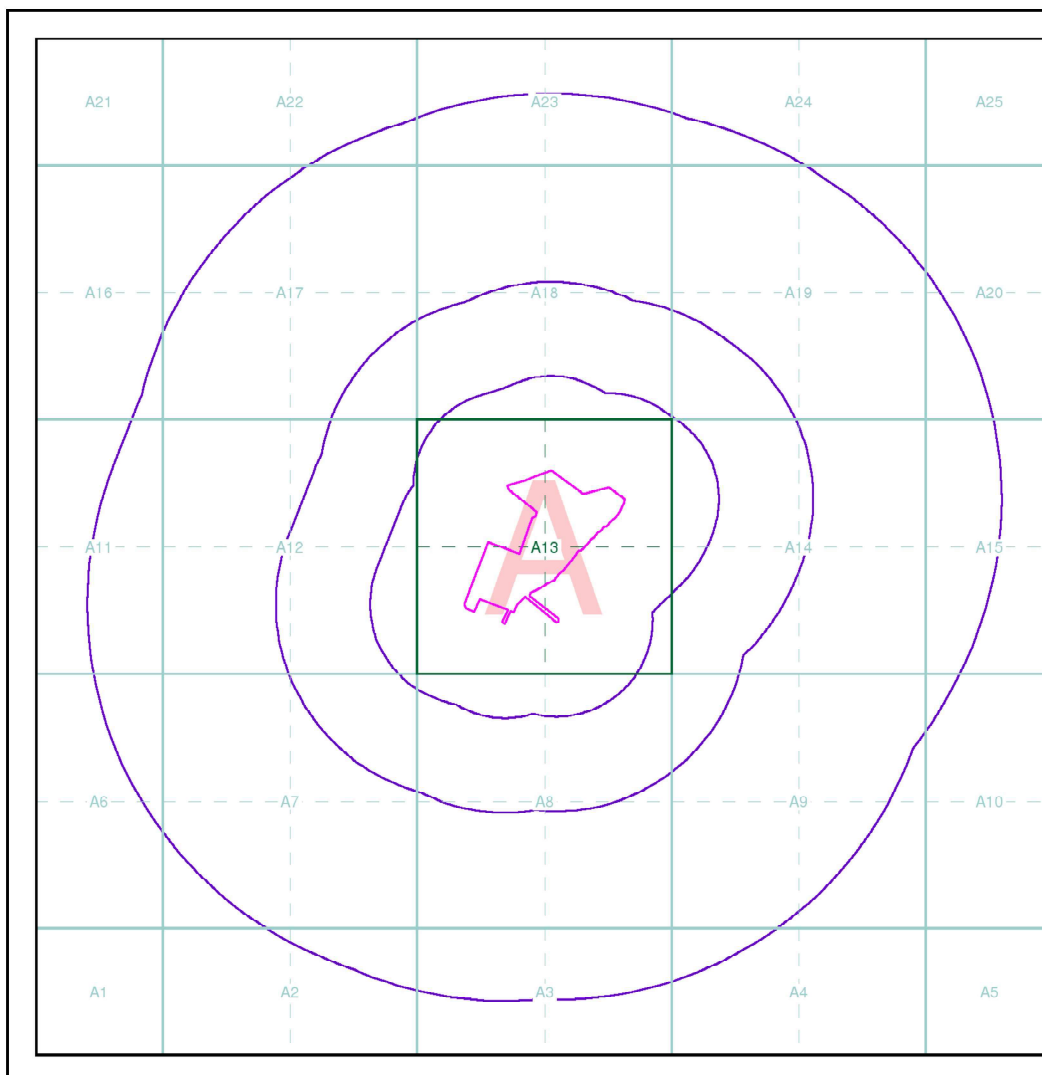
### Site Details

Site at 360130, 438020

Full Terms and Conditions can be found on the following link:  
<http://www.landmarkinfo.co.uk/Terms/Show/515>

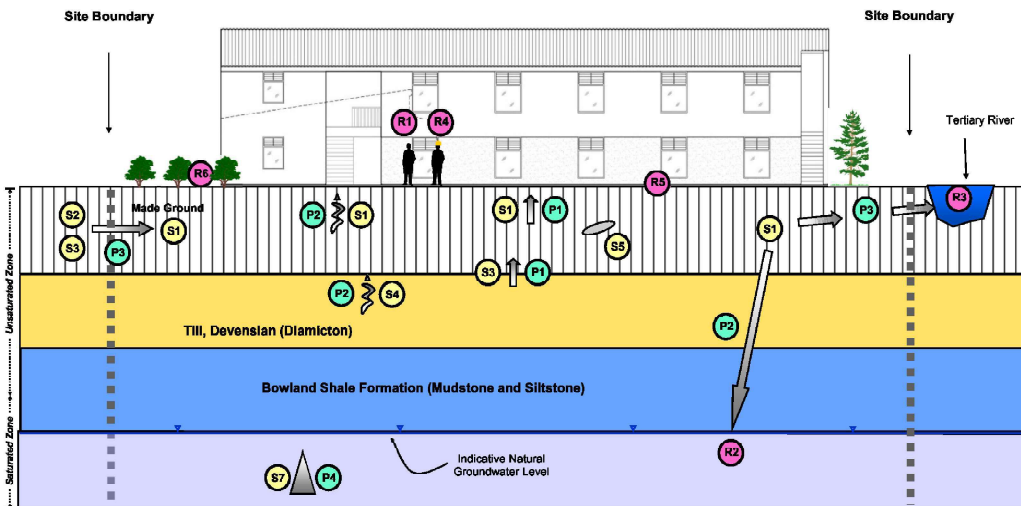


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## **Appendix A3 – Diagrammatic Conceptual Model**

# Boland Meadow, Higgin Brook



- | Sources   |   |
|-----------|---|
| S1        | Made-ground (On site)                       |
| S2        | Made-ground (Off site)                      |
| S3        | Natural soils (On & off site)               |
| S4        | Ground gas sources                          |
| S5        | Unexploded ordnance                         |
| S6        | Radon geology                               |
| S7        | Mine workings                               |
| Pathways  |   |
| P1        | Direct contact, ingestion and or inhalation |
| P2        | Vertical migration                          |
| P3        | Horizontal migration                        |
| P4        | Collapse                                    |
| Receptors |   |
| R1        | End users                                   |
| R2        | Groundwater                                 |
| R3        | Surface water                               |
| R4        | Construction workers                        |
| R5        | Construction materials                      |
| R6        | Local ecology                               |



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**Project**  
Boland Meadow, Higgin Brook  
**Drawing Title**  
Diagrammatic Conceptual Model

**Job Reference**  
EB1355  
**Date**  
28.03.2014

**Author**  
GL  
**Checked**  
AW

**Client**  
Barrall Homes  
**Scale**  
Not to scale

## Appendix A4 – Qualitative Risk Assessment Rationale

The site-specific qualitative risk assessment of environmental harm, as detailed in Section 3.0 of this reporting, is summarised in Table A4.1 hereafter; the principle being to establish connecting links between a hazardous source to a potential receptor via an exposure pathway.

The qualitative risk assessment corresponds with the **total site area**.

Risk assessment is the process of collating known information on a hazard or set of hazards in order to estimate actual or potential risk to receptors. The receptor may be humans, a water resource, a sensitive local ecosystem or future construction materials. Receptors can be connected to the hazardous source by one or several exposure pathways such as direct contact for example. Risks are generally managed by isolating the receptor or intercepting the exposure pathway or by isolating or removing the hazard.

Without the three essential components of a source, pathway and receptor there can be no risk. Therefore the presence of hazard on a site does not necessarily mean there is a risk.

By considering where a viable pathway exists which connects a source with a receptor the risk assessment in Section 3.0 and Table A4.1 identifies where pollutant linkage exists. If there is no pollutant linkage there is no risk and only where a pollutant linkage is established does the risk assessment consider the level of risk.

The risk assessment considers the likelihood of a particular event taking place (accounting for the presence of the hazard and receptor and the integrity of the exposure pathway) in conjunction with the severity of the potential consequence (accounting for the potential severity of the hazard and the sensitivity of the receptor).

In the risk assessment the consequence of the hazard has been classified as severe or medium or mild or minor and the probability (likelihood) of the circumstances actually occurring classified as high likelihood or likely or low likelihood or unlikely.

The consequences and probabilities are subsequently cross-correlated to give a qualitative estimation of the risk using Department of the Environment risk classifications as detailed in the table below and as referenced in CIRIA C552.

		Consequence			
		Severe	Medium	Mild	Minor
Probability (Likelihood)	High Likelihood	Very High Risk	High Risk	Moderate Risk	Negligible Risk
	Likely	High Risk	Moderate Risk	Moderate/Low Risk	Negligible Risk
	Low Likelihood	High/Moderate Risk	Moderate/Low Risk	Low Risk	Negligible Risk
	Unlikely	Moderate/Low Risk	Low Risk	Negligible Risk	Negligible Risk

In accordance with DoE guidance, the following categorisation of **consequence** has been developed.

Classification	Definition	Examples
Severe	Short-term (acute) risk to human health likely to result in “significant harm” as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem or organisation forming part of such ecosystem.	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled water. Explosion, causing building collapse (can also equate to a short-term human health risk if buildings are occupied).
Medium	Chronic damage to Human Health. Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of such ecosystem.	Concentration of a contaminant from site exceeds the generic or site-specific assessment criteria. Leaching of contaminants from a site to a Principal or Secondary A aquifer. Death of a species within a designated nature reserve. Lesser toxic and asphyxiate effects
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services. Damage to sensitive buildings/structures/services or the environment.	Pollution of non-classified groundwater (inc. Secondary B aquifers). Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	Harm, although not necessarily significant harm, which may result in a financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing, etc). Easily repairable effects of damage to buildings, structures and services.	The presence of contaminants at such concentrations that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discoloration of concrete.

In accordance with DoE guidance, the following categorisation of **probability** has been developed.

Classification	Definition
<b>High Likelihood</b>	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution.
<b>Likely</b>	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
<b>Low Likelihood</b>	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
<b>Unlikely</b>	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

In accordance with DoE guidance, the following categorisation of **risk** has been developed.

Classification	Definition
<b>Very High Risk</b>	There is a <i>high probability</i> that <i>severe harm</i> could arise to a designated receptor from an identified hazard at the site without appropriate further action.
<b>High Risk</b>	<i>Harm is likely to arise</i> to a designated receptor from an identified hazard at the site without appropriate further action.
<b>Moderate Risk</b>	<i>It is possible</i> that without appropriate further action <i>harm could arise</i> to a designated receptor. It is relatively <i>unlikely</i> that any such harm would be <i>severe</i> , and if any harm were to occur it is <i>more likely</i> that such harm would be <i>relatively mild</i> .
<b>Low Risk</b>	<i>It is possible</i> that <i>harm could arise</i> to a designated receptor from an identified hazard. It is <i>likely</i> that, at worst, if any harm was realised any effects would be <i>mild</i> .
<b>Negligible Risk</b>	The presence of an identified hazard does not give rise to the potential to cause harm to a designated receptor.

The term 'risk' in this instance refers to the risk that the source, pathway, receptor linkage for a given source of contamination is complete. It does not refer to immediate risk to individuals or features present on the site from potential contaminants and is intended to be used as a tool to assess the necessity of further investigation.



**Appendix A4.1 – Table and Summary of Potential Risks, Sheet 1**

Conceptual Site Model			Qualitative Risk Assessment		
Source	Pathway(s)	Receptor(s)	Consequence (Potential Severity)	Likelihood of Occurrence	Risk*
<b>S1: Made ground soils on site</b>	<b>P2:</b> Vertical migration	<b>R2:</b> Controlled waters (Groundwater)	Medium	Low Likelihood	Moderate/Low
	<b>P3:</b> Horizontal migration	<b>R3:</b> Controlled waters (Surface Waters)	Medium	Low Likelihood	Moderate/Low
	<b>P1:</b> Direct contact, ingestion, inhalation (dust and vapours)	<b>R1:</b> End user of site	Medium	Low Likelihood	Moderate/Low
	<b>P1:</b> Direct contact, ingestion, inhalation (dust and vapours)	<b>R4:</b> Construction workers	Minor	Low Likelihood	Negligible
	<b>P1 &amp; P3:</b> Direct contact, ingestion, inhalation (dust and vapours) and horizontal migration	<b>R5:</b> Construction materials	Mild	Low Likelihood	Low
	<b>P1 &amp; P3:</b> Direct contact, ingestion, inhalation (dust and vapours) and horizontal migration	<b>R6:</b> Local ecology	Minor	Low Likelihood	Negligible
<b>S2: Made ground soils off site</b>	<b>P3 &amp; P1:</b> Horizontal migration and direct contact, ingestion, inhalation (dust and vapours)	<b>R1:</b> End user of site	Medium	Likely	Moderate
	<b>P3 &amp; P1:</b> Horizontal migration and direct contact, ingestion, inhalation (dust and vapours)	<b>R4:</b> Construction workers	Minor	Likely	Negligible

**Appendix A4.1 – Table and Summary of Potential Risks, Sheet 2**

Conceptual Site Model			Qualitative Risk Assessment		
Source	Pathway	Receptor	Consequence (Potential Severity)	Likelihood of Occurrence	Risk*
<b>S3:</b> Natural soils on or off site	<b>P1 &amp; P3:</b> Direct contact, ingestion, inhalation (dust and vapours) and horizontal migration	<b>R1:</b> End user of site	Medium	Unlikely	Moderate/Low
	<b>P1 &amp; P3:</b> Direct contact, ingestion, inhalation (dust and vapours) and horizontal migration	<b>R4:</b> Construction workers	Minor	Unlikely	Negligible
<b>S4:</b> Ground gases	<b>P2 &amp; P3:</b> Vertical and horizontal migration	<b>R1:</b> End user of site	Severe	Low Likelihood	High/Moderate
<b>S5:</b> Radon	<b>P2 &amp; P3:</b> Vertical and horizontal migration	<b>R1:</b> End user of site	Medium	Unlikely	Low
<b>S6:</b> Unexploded ordnance	<b>P1:</b> Direct contact	<b>R1:</b> End user of site	Severe	Unlikely	Moderate/Low
	<b>P1:</b> Direct contact	<b>R4:</b> Construction workers	Severe	Unlikely	Moderate/Low

*\*Risk refers to the potential risk that the Source, Pathway, Receptor linkage is complete and is used to determine if any further investigation is required. It does not indicate immediate emergency risk to any individual or feature present on the site unless specifically noted.*

# Our Locations

## **Birmingham**

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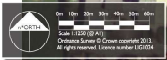




**Key**

- Application Site Boundary
- Access
- Village Streets
- Village Lanes
- Squares & Parks
- Footpaths/Cycleways
- Existing Trees
- Existing Hedgerows (measured & numbered)
- Planted Trees & Hedgerows
- Play Areas - Locally Equipped Area for Play
- Play Areas - Neighbourhood Equipped Area for Play

**e\*SCAPE**  
 urbanists  
 Project Title  
 Higgins Brook, Longridge  
 e\*SCAPE job No.  
 013-008  
 Client  
 Barratt Homes  
 Drawing Number  
 013-008-P008  
 Drawing Title  
 Illustrative Masterplan/  
 Indicative Layout  
 Scale  
 1:1,250 @ A1  
 Date  
 Feb 15



## Sam Dean

---

**From:** Daniel Sutcliffe <Daniel.Sutcliffe@ribblevalley.gov.uk>  
**Sent:** 15 February 2016 10:53  
**To:** Sam Dean; Linden Richardson  
**Cc:** Stephen Kilmartin  
**Subject:** RE: STN3505NM: Gas monitoring at Longridge Preston

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Good Morning,

Apologies for the delay in responding but I have been off sick recently and I'm still catching up. I am happy for you to forego the gas monitoring on this site as I agree the likelihood/risk is relatively minimal. Please report on the intrusive ground investigations that you carry out and ensure that your findings (and details of any remediation work carried out) are submitted with your verification statement.

I've copied in the relevant planning officer for your site so that he is kept up to date and can make any necessary comment.

Kind Regards

**Daniel Sutcliffe**  
*Engineering Assistant*  
Ribble Valley Borough Council

---

**From:** Sam Dean [mailto:Sam.Dean@soiltechnics.net]  
**Sent:** 11 February 2016 12:21  
**To:** Sam Dean; Daniel Sutcliffe; Linden Richardson  
**Subject:** RE: STN3505NM: Gas monitoring at Longridge Preston

Afternoon Daniel

have you had a chance to review our comments as per below?

Any queries please give me a call

Kind regards

**Sam Dean**  
B.Sc. (Hons.), MEnvSc., FGS  
Associate Director

  
e sam.dean@soiltechnics.net  
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**Manchester Office**  
Ivy Mill Business Centre, Crown Street, Failsworth, Manchester M35 9BG t 0161 9470270

---

**From:** Sam Dean  
**Sent:** 04 February 2016 12:37  
**To:** Daniel Sutcliffe; Linden Richardson  
**Subject:** RE: STN3505NM: Gas monitoring at Longridge Preston

Daniel

Ref is Application 3/2014/0764

Any queries please give me a call

Kind regards

**Sam Dean**

B.Sc. (Hons), MEnvSc., FGS  
**Associate Director**

  
e [sam.dean@soiltechnics.net](mailto:sam.dean@soiltechnics.net)

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---

**From:** Daniel Sutcliffe [<mailto:Daniel.Sutcliffe@ribblevalley.gov.uk>]

**Sent:** 04 February 2016 10:34

**To:** Sam Dean <[Sam.Dean@soiltechnics.net](mailto:Sam.Dean@soiltechnics.net)>; Linden Richardson <[Linden.Richardson@soiltechnics.net](mailto:Linden.Richardson@soiltechnics.net)>

**Subject:** RE: STN3505NM: Gas monitoring at Longridge Preston

Morning,

Could you please send me the relevant planning application reference for this site so that I can look it up?

Regards

**Daniel Sutcliffe**

*Engineering Assistant*  
Ribble Valley Borough Council

---

**From:** Sam Dean [<mailto:Sam.Dean@soiltechnics.net>]  
**Sent:** 02 February 2016 13:43  
**To:** Linden Richardson  
**Cc:** Daniel Sutcliffe  
**Subject:** Re: STN3505NM: Gas monitoring at Longridge Preston

Daniel

Just to add to what Linden outlined, the site has outline planning (phase 1 and phase 2 approx 350 dwellings) and I believe you would have been in receipt of a phase 1 desk study report for the site already undertaken by a third party. They have outlined that gas is a source of concern based on the presence of potential Made Ground offsite.

The site is greenfield and geology is glacial till (clays). Landfill sources and historic pits are limited and distant. In our opinion even if there was a source of gas in Made Ground soils offsite, there is no preferential migration pathway to the site and the source, unless it contained significant concentrations of degradable and putrescible material of significant thickness, is considered low risk.

As you can appreciate, this may cause some conflict and delays later in the planning process if the LA are expecting to see some gas monitoring based on the recommendations of the desk study report and we do not undertake based on our assessment. If the LA recommend that such monitoring is undertaken as a matter course on all sites within their remit the we would obviously have no objection to this.

We would appreciate any feedback at your earliest convenience, we are programmed to undertake intrusive ground investigations at the site Weds and Thursday this week in the phase 1 area, with phase 2 following next week.

Regards

Sam Dean  
(Associate Director for Soiltechnics Ltd)

Sent from my iPhone

On 2 Feb 2016, at 12:50, Linden Richardson <[Linden.Richardson@soiltechnics.net](mailto:Linden.Richardson@soiltechnics.net)> wrote:

Dear Mr Sutcliffe

I am working on the ground investigation for a proposed residential development at the above address (postcode PR3 2NA, it is the land north of the village and east of Chipping Lane) and will shortly be undertaking the site investigation.

It has been suggested to me that I get in touch with you to get your position on the requirements for gas monitoring at the site. Our desk study has revealed no clear sources of ground gas and we are of the opinion that gas monitoring is not required at the site. If you agree with this position it would be useful to receive confirmation of this so that gas monitoring can be discounted. This would allow the planning application to be completed more promptly and at lower expense. However, should you need more time to deliberate, or not be able to respond before the works are undertaken then we will happily proceed with installations and monitoring.

Many thanks for any input you can provide.

Regards

**Linden Richardson**

B.Eng. (Hons), MSc., AIEMA  
Geo-environmental Engineer

t 0161 9470270



e [linden.richardson@soiltechnics.net](mailto:linden.richardson@soiltechnics.net)

[www.soiltechnics.net](http://www.soiltechnics.net)

<image001.png>

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### Initial Conceptual Model

Current site use commercial/industrial  
Proposed site use residential

Source	Pathway										Receptor	Risk assessment to CIRIA C552					
	Humans											Consequence of risk occurring via most likely pathway					
	Ingestion of air-borne dusts	Ingestion of soil	Ingestion of vegetables and soil attached to vegetables	Inhalation of air-borne dusts	Inhalation of vapours	Dermal contact with soil and dust	Vegetation Root uptake, deposition to shoots and foliage contact	Water Percolation of water through contaminated soils	Near-surface water run-off through contaminated soils	Saturation of contaminated soils by flood waters							
<b>Soils</b>																	
Historic land use, pollution incidents and landfills/restored quarries in local area	Likely	Likely	Unlikely	Likely	Likely	Likely	-	-	-	-	Current site users	Adult	Minor	Low			
Metals, PAHs, TPHs, organic pathogens and bacteria	Likely	Likely	Unlikely	Likely	Likely	Likely	-	-	-	-	Proposed site users	Child	Minor	Low			
	-	-	-	-	-	-	Likely	-	-	-	Construction operatives	Adult	Minor	Low			
	-	-	-	-	-	-	-	Unlikely	Likely	Unlikely	Vegetation (current and proposed)	-	Minor	Low			
	-	-	-	-	-	-	-	-	-	-	Water (current and proposed)	-	Minor	Low			

### Final Conceptual Model

Current site use commercial/industrial  
Proposed site use residential

Source	Pathway										Receptor	Risk assessment to CIRIA C552				
	Humans											Consequence of risk occurring via most likely pathway				
	Ingestion of air-borne dusts	Ingestion of soil	Ingestion of vegetables and soil attached to vegetables	Inhalation of air-borne dusts	Inhalation of vapours	Dermal contact with soil and dust	Vegetation Root uptake, deposition to shoots and foliage contact	Water Percolation of water through contaminated soils	Near-surface water run-off through contaminated soils	Saturation of contaminated soils by flood waters						
<b>Soils</b>																
Potential for leachable concentrations of copper to exist in Topsoil as identified in Phase 1 and Phase 2 development areas	Likely	Likely	Unlikely	Likely	Likely	Likely	-	-	-	-	Current site users	Adult	Minor	Low		
	Likely	Likely	Unlikely	Likely	Likely	Likely	-	-	-	-	Proposed site users	Child	Minor	Low		
	-	-	-	-	-	-	Likely	-	-	-	Construction operatives	Adult	Minor	Low		
	-	-	-	-	-	-	-	Unlikely	Likely	Unlikely	Vegetation (current and proposed)	-	Minor	Low		
	-	-	-	-	-	-	-	-	-	-	Water (current and proposed)	-	Minor	Low		

Title	Table number
Conceptual Site Model	1
Report ref: STNG6505NM.G03 Revision 0	July 2016 Appendix F